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Dr. Seema Rathee
Assistant Professor
Department of Commerce
MDU Rohtak, Haryana, India

Meenu
Research Scholar
Department of Commerce
MDU Rohtak, Haryana, India

An exploratory study on awareness of research scholars regarding statistical software's used in analysis

Dr. Seema Rathee and Meenu

Abstract

Today, in this research era there are many ways to define the research. Research has many terminologies which are necessary to be known because without the knowledge of these terms we cannot accomplish something. So, it is important that every researcher should have knowledge about research process, research tools, statistical software's etc. without the knowledge of software's we cannot analyze the data and it will all be failed which we want to achieve because with the knowledge of the software's we can interpret the data easily. So, this paper is to make sure that how much aware are research scholars of the some selected universities in Haryana about the selected software's. Data is collected through questionnaire and analyzed with the help of SPSS. Results indicated that researchers are more aware about only two software's i.e. Excel and SPSS.

Keywords: Statistical software's, SPSS, LISREL, AMOS, STATA, E-Views etc.

Introduction

The importance of research in the context gained increasing thrust in the early 1991s, with the major economic reform implemented post liberalization by the Indian government. Competition from domestic and international players forced even the existing players for improving business efficiency through the research analysis. So, this is the research which will provide a leader position in the queue of business persons as well as in other fields. Research is not complete in its own self. Because without awareness and knowledge of research tools, Statistical software's no research study can be imagined. What tools are needed for a particular research and what software are to be used for that research is required to be known.

Today, it is important to know the importance of various statistical software's and where these are applied, on what type of data which software will be used, what will be interpretation etc. A systematic procedure for applying any test on different types of data should be followed for which it is necessary to know the importance of all the statistical software's. There are various statistical software's like Excel, SPSS, E-Views, AMOS, STATA, LISREL etc. which are used for particular types of data. This software's are used for data entry, analyzing the data, manipulating the data, recording the data etc.

Statistical Software's

To analyze the data there are some specific statistical software's that are specialized computer programs used for analysis in statistics and econometrics. There are some selected software's that are taken for this study. These are given below:

Excel: Microsoft Excel is an electronic spreadsheet application for storing, organizing and manipulating data. It is basically used for analyzing the data, managing the data, to identify trends, to build charts and forms and to budget etc.

SPSS: SPSS is a statistically package that is basically used in social sciences research. It has various features that are helpful in analyzing the collecting data.

Correspondence
Dr. Seema Rathee
Assistant Professor
Department of Commerce
MDU Rohtak, Haryana, India

AMOS: It is statistical software and it stands for analysis of a moment structures. AMOS is an added SPSS module, and is specially used for Structural Equation Modeling, path analysis, and confirmatory factor analysis.

STATA: It is a comprehensive statistic package that provides everything needed for data analysis, data management, and graphics.

E-Views: E-Views (Econometric Views) is a statistical package for Windows, used mainly for time-series oriented econometric analysis.

LISREL: LISREL ("linear structural relations) is a proprietary statistical software package used in structural equation modeling (SEM) for manifest and latent variables.

Why Statistical Software's?

Statistical Software's help us to measure the data after collecting. To get reliable and accurate results we make use of suitable software according to the data. Some of the reasons are here, why we use statistical software's:

- ✓ To enter the data
- ✓ To observe relationships
- ✓ To check the reliability and validity
- ✓ To test hypothesis
- ✓ To construct facts
- ✓ To discover issues
- ✓ To present information
- ✓ To make comparisons to find similarities and differences
- ✓ To draw conclusions about populations based only on sample results.
- ✓ To make interpretations

Review of Literature

Begum, K.J., Ahmed, A. (2015). presented a descriptive study about the importance of statistical tools in research work. They discussed that each and every researcher should have knowledge about statistics and the different terminologies of statistics. Without the knowledge of statistics a researcher cannot do his or her research work. But it is not sufficient to have knowledge about statistics only; they should have knowledge about some research methodology. Because without knowledge of the research methodology, statistical tools cannot be applied accurately. It is important to know the importance of various statistical tools and where they are applied, on what type of data which tools will be applied, what will be interpretation etc. From simple statistical tools like mean, standard deviation, correlation, regression to high statistical tools like parametric and non-parametric test, knowledge about all should be to the researcher. A systematic procedure for applying any test on different types of data should be followed for which it is necessary to know the importance of all the statistical tools and techniques.

Jadhav, B.R., Shete, M.G. (2015) [1], executed an exploratory research to study the awareness of research in Corporate and Academics and also to know the various problems faced by researchers and also to check the most critical areas in research process faced by researchers. This study focused on the Ph. D scholars whether they were working as a faculty in colleges or they were working as a corporate in the city Ahmednagar. A self structured questionnaire was used including 29 close ended and one

open ended question to collect the data from 60 respondents selected from colleges and corporate in Ahmednagar city. Convenient sampling method was adopted to select the sample and various suitable tools like percentages, proportions and chi- square were applied to analyze the data. In result, they found that at 90% level of significance, null hypothesis was accepted i.e. "researchers are not aware about research process and other research related area like financial assistance, software etc." It was also found that researchers were not facing any problem while doing research and also they were not getting adequate guidance in research process.

Objective of the Study: The main objective of this paper is to know the awareness level of research scholars in relation to some selected statistical software's used in the research.

Research Methodology: This paper is descriptive in nature as it describes the awareness level of research scholars. Data is collected through a self structured questionnaire. After entering the data in SPSS reliability was checked with the help of cronbach Alpha. This gave a value of .80 which shows that data is reliable and it can be tested further.

Sample Plan: 75 questionnaires were distributed to researchers of different selected universities in Haryana. But, 65 questionnaires were returned back that was measured for analysis.

Tools of Analysis: Collected data is analyzed with the help of SPSS. To analyze the data frequency and percentages are used.

Data Analysis and Interpretation

Table 1: Awareness of Software's used in research

Software	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Excel	62	95.4	3	4.6
SPSS	53	81.5	12	18.5
AMOS	15	23.1	50	76.9
STATA	14	21.5	51	78.5
E-Views	14	21.5	51	78.5
LISREL	10	15.4	55	84.6

Source: Researcher's Calculation

The present table positions the awareness level of researchers on the topic of software's used in research. With the help of frequency and percentage it is found that researchers are more aware about only two software's i.e. Excel and SPSS. It is about 81.5% to 95.4%. This table also concludes that approx. 75% researchers are not aware concerning AMOS, STATA and E-views. Also LISREL is the software about which only 15% researchers are aware.

Table 2: Frequency of respondents regarding software's actually used

Software	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Excel	49	75.4	16	24.6
SPSS	38	58.5	27	41.5
AMOS	5	7.7	60	92.3
STATA	5	7.7	60	92.3
E-Views	5	7.7	60	92.3
LISREL	4	6.2	61	93.8

Source: Researcher's Calculation

Table 2 of the study is to about which software’s are preferred by researchers for data analysis of their research work. This data tells us that Excel is more preferable software among researchers i.e. 75.4% researchers find there selves confident to use Excel. SPSS is used by approx 59% scholars for their research work. Relax software’s are unknown by the researchers, these are AMOS, STATA, E-Views and LISREL. Only 6% to 7% researchers used these rest software’s for their work.

Table 3: Frequency of respondents who actually know application process

Software	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Excel	51	78.5	14	21.5
SPSS	39	60	26	40
AMOS	8	12.3	57	87.7
STATA	7	10.8	58	89.2
E-Views	11	16.9	54	83.1
LISREL	7	10.8	58	89.2

Source: Researcher’s Calculation

Table 3 informs about the frequency of respondents who actually know the application process of the selected software’s. It comes to know from the table that 78.5% scholars know application process of software Excel but only 60% scholars know the application process of software SPSS. This table also attempts that more than half researchers i.e. 83% to 89% do not know application process of the software’s AMOS, STATA, E-Views and LISREL.

Conclusion

It is concluded from this paper that scholars are aware of only Excel and SPSS Software’s. 75% researchers are not aware concerning AMOS, STATA and E-views. Also LISREL is the software about which only 15% researchers are aware. 75.4% researchers find there selves confident to use Excel. 83% to 89% do not know application process of the software’s AMOS, STATA, E-Views and LISREL. So, it is to be said that researchers should have knowledge about all the software’s because particular software cannot be used for all types of data.

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